



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

Address: COMMISSIONER FOR PATENTS

P.O. Box 1450

Alexandria, Virginia 22313-1450

www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/533,589	05/03/2005	James A Proctor JR.	080588	2286
23596 7590 03/19/2009 QUALCOMM INCORPORATED 5775 MOREHOUSE DR. SAN DIEGO, CA 92121				
EXAMINER				
THIER, MICHAEL				
ART UNIT		PAPER NUMBER		
2617				
NOTIFICATION DATE		DELIVERY MODE		
03/19/2009		ELECTRONIC		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

us-docketing@qualcomm.com

kascanla@qualcomm.com

nanm@qualcomm.com

### Office Action Summary

**Application No.**

10/533,589

**Applicant(s)**

PROCTOR ET AL.

**Examiner**

MICHAEL T. THIER

**Art Unit**

2617

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 27 January 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-65 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13, 18-30, 35-41, 45-49, 57 and 58 is/are rejected.
- 7) ☒ Claim(s) 14-17, 31-34, 42-44, 50-56 and 59-65 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 2/11/2009
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 1/27/2009 has been entered.

### ***Information Disclosure Statement***

2. The information disclosure statement (IDS) submitted on 2/11/2009 has been entered and considered by the examiner.

### ***Response to Arguments***

3. Applicant's arguments filed 1/27/2009 have been considered but are moot in view of the new ground(s) of rejection.

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1, 5-11, 18, 22-28, 36-37, 38-41, 46, 48, and 57 are rejected under 35 U.S.C. 103(a) as being unpatentable over Treatch (US 5697052) in view of Lusky et al. (US 7315573).

**Regarding claims 1, 18, 48, and 57.** Treatch teaches a method and apparatus for detecting the presence of a signal on one of at least two frequency channels in a frequency translating repeater for use in wireless local area network (WLAN) operating according to a protocol, (abstract) the apparatus comprising:

a radio frequency interface; (figure 7 item 100)

a processor; (figure 7 item 71) and

a memory coupled to the processor and the radio frequency interface, (figure 7 item 71, micro processor, further column explains the micro processor can be programmed to scan specific channels, thus having an included memory, further see figure 7 item 80 which is a control computer which inherently has included memory) the memory containing instructions for causing the processor to:

establish a first threshold associated with a first of the at least two frequency channels and a second threshold associated with a second of the at least two frequency channels; (column 5 lines 25-26 explains that threshold sensing circuits can be included in the level detector in order to detect signals. He does not specifically recite a first and second threshold, however, he does recite threshold sensing circuits (plural), and therefore it can easily be understood by one of ordinary skill in the art that a threshold for each channel to be scanned can be established.)

monitor the first and second frequency channels to detect the signal thereon in

accordance with a first detection mode including the first threshold and the second threshold; (column 2 lines 42-45, column 4 lines 17-22 and column 5 lines 25-26, i.e. the processor scans a plurality of channels to detect a signal, the apparatus can utilize threshold sensing circuits to aid in detecting the signal.)

However, Treatch does not specifically disclose the idea of qualifying, if the signal is detected, to determine whether the detected signal is a wanted signal or an unwanted signal.

Lusky teaches a channel monitoring method and apparatus (title and abstract). He teaches the idea of determining whether the detected signal is a wanted signal or an unwanted signal in column 10 lines 5-22. He explains that the detection method identifies noise by inspecting an input signal's energy as a function of time. Since the system can clearly identify noise, which is an unwanted signal, it clearly can determine if the detected signal is wanted or unwanted (i.e. if it is or is not noise).

Therefore it would have been obvious for one of ordinary skill in the art at the time of invention to utilize the teachings of Lusky with the teachings of Treatch. The motivation for doing so would have been to allow for a system that can analyze channel impairments and determine optimal parameters. (Lusky column 2 lines 65-67)

**Regarding claims 5 and 22.** Treatch further teaches wherein the instructions further cause the processor to refine the first threshold and the second threshold if no signal is detected. (column 5 lines 25-26, threshold sensing circuits can be adjustable)

**Regarding claims 6 and 23.** Treatch further teaches wherein the first detection mode includes an analog detection mode, not involving the processor directly. (column

5 lines 23-25)

**Regarding claims 7 and 24.** Lusky further teaches the idea of recording information if the signal is an unwanted signal in column 5 lines 44-47. He explains the idea of monitoring and recording any noise. (i.e. noise is an unwanted signal)

**Regarding claims 8 and 25.** Treatch further teaches wherein the instructions further cause the processor to disable a transmission of the signal over the radio frequency interface if the detected signal is determined to be the unwanted signal. (column 10 lines 5-22, detect if the signal has noise or some unwanted signal, the system will not repeat the noise)

**Regarding claims 9 and 26.** Treatch further teaches wherein the instructions further cause the processor to refine the first and the second threshold using the recorded information. (column 5 lines 25-26, the threshold sensing circuits allows for this limitation to be understood from the Treatch reference.)

**Regarding claims 10 and 27.** Treatch further teaches wherein the instructions further cause the processor to monitor the first and second frequency channels to detect a signal thereon in accordance with a second detection mode including the first threshold and the second threshold when the detected signal is detected. (column 5 lines 23-25, the first mode is the analog detection (i.e. capacitor), the second mode is the threshold sensing circuits performing the detection explained in column 5 lines 25-26)

**Regarding claims 11 and 28.** Treatch further teaches wherein the second detection mode includes a digital detection mode. (column 4 lines 17-22, i.e. the micro

processor scans and detects signals, thus being a digital detection mode)

**Regarding claims 12 and 29.** Treatch further teaches wherein the instructions further cause the processor to override the first detection mode with a second detection mode. (par. 46, the first mode is the analog detection explained in column 5 lines 23-25, the second mode is the threshold sensing circuits explained in column 5 lines 25-26, the micro processor can perform detection (as explained in column 4 lines 17-22), thus being done after the first detection mode, i.e. overriding)

**Regarding claim 38.** Treatch further teaches a detection unit associated with each of the at least two frequency channels. (figure 7 item 106)

**Regarding claim 39.** Treatch teaches wherein the detection unit includes at least one of: a diode detector at an intermediate frequency (IF), a diode detector at a base band frequency, a matched filter at the IF, a matched filter at a radio frequency (RF). (figure 7 item 106)

**Regarding claim 40.** Treatch further teaches a converter to digitize the signal to form a digitized signal and wherein the detector unit is further configured to detect the digitized signal. (figure 7 item 108)

**Regarding claim 41.** Lusky further teaches wherein the detection unit is further configured to: compare a power level associated with the signal; monitor the signal over a time interval to determine a noise estimate; and comparing the current signal power to this estimate as part of the detection process. (column 6 lines 52 to column 7 line 7)

**Regarding claim 46.** Treatch further teaches wherein the detection unit is

further configured to monitor the at least two frequency channels at the same time.  
(column 4 lines 17-22) Lusky teaches detecting noise in operating channels column 5  
lines 44-47. The combination reads on the limitations of this claim.

6. Claims 2 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over  
Treach (US 5697052) in view of Lusky et al. (US 7315573) in further view of Sumi (US  
4081752).

**Regarding claims 2 and 19.** Treach and Lusky teach the limitations of the  
previous claims.

However they do not specifically disclose the idea of using saw tooth process to  
determine thresholds.

Sumi (US 4081752) teaches at column 24 lines 38-46 the idea of using a saw  
tooth control for establishing thresholds (i.e. maximum frequency using saw tooth  
control).

Therefore it would have been obvious for one of ordinary skill in the art at the  
time of invention to utilize the teachings of Sumi with the teachings of Treach and  
Lusky. The motivation for doing so would have been to allow for utilizing a well known  
technique to improve the scanning operation of the receiver. (Sumi column 3 lines 28-  
35)

7. Claims 3-4 and 20-21 are rejected under 35 U.S.C. 103(a) as being unpatentable  
over Treach (US 5697052) in view of Lusky et al. (US 7315573) in further view of



Peterson (US 6574198).

**Regarding claims 3 and 20.** Treatch and Lusky teach the limitations of the previous claims.

However, they do not specifically disclose wherein the instructions further cause the processor to add a delay to the signal after the signal is detected, and wherein a detection bandwidth associated with the monitoring is less than a group delay associated with the signal.

Peterson teaches at column 5 lines 4-18, the idea that a delay timer is set less than a time out period, to signify the loss of a signaling link, and thus clearly teaches adding a delay to a signal after it is detected.

Therefore it would have been obvious for one of ordinary skill in the art at the time of invention to utilize the teachings of Peterson with the teachings of Treatch and Lusky. The motivation for doing so would have been to allow for a simple technique to signify when a signaling link has been lost. (Peterson column 5 lines 4-18)

**Regarding claims 4 and 21.** Peterson teaches at column 5 lines 4-18, the idea that a delay timer is set less than a time out period, to signify the loss of a signaling link.

8. Claims 37 and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Treatch (US 5697052) in view of Lusky et al. (US 7315573) in further view of Irving et al. (US 6163276) and Weaver, Jr. et al. (US 6108364).

**Regarding claim 37.** Treatch, Lusky, and Irving teach the limitations of the previous claims.

However, they do not specifically disclose wherein the IF unit is configured to add a delay to the down converted signal during a period the signal is not detected and prior to enabling a transmission.

Weaver, Jr et al. teaches wherein the IF unit is configured to add a delay to the down converted signal during a period the signal is not detected and prior to enabling a transmission. (see figure 4 item 176)

Therefore it would have been obvious for one of ordinary skill in the art at the time of invention to utilize the teachings of Weaver Jr. with the teachings of Tretch and Lusky and Irving. The motivation for doing so would have been to allow for using a simple and well known technique for adding delay. SAW filters allow for a simple and effective way of adding several hundred nanoseconds to tens of microseconds at the cellular frequency. (Weaver Jr. column 10 lines 40-45)

**Regarding claim 45.** Weaver, Jr et al. teaches in column 6 lines 35-40 and column 10 lines 40-42 the use of a SAW filter to add a delay.

9. Claims 13, 30, 49, and 58 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tretch (US 5697052) in view of Lusky et al. (US 7315573) in further view of Leslie et al. (US 6404755).

**Regarding claims 13, 30, 49, and 58.** Tretch and Lusky teach the limitations of the previous claim.

However, they do not specifically disclose starting a timer to measure an elapsed time associated with the detected signal if the detected signal is determined to be the

wanted signal; and enabling a transmission of the detected signal in accordance with an override mode.

Leslie teaches this limitation in column 26 lines 15-26. (i.e. setting a timer when the signal is received and enabling transmission of the detected signal in accordance with an override mode)

Therefore it would have been obvious for one of ordinary skill in the art at the time of invention to utilize the teachings as in Leslie with the teachings as in Treatch and Lusky. The motivation for doing so would have been to allow for a system that can efficiently retransmit received signals.

10. Claims 35-36 and 47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Treatch (US 5697052) in view of Lusky et al. (US 7315573) in further view of Irving et al. (US 6163276).

**Regarding claim 47.** Treatch and Lusky teach the limitations of the previous claim 41.

However, they do not teach the idea of the converter being under sampled to monitor noise.

Irving teaches this limitation in column 4 lines 43-55.

Therefore it would have been obvious for one of ordinary skill in the art at the time of invention to utilize the teachings as in Irving with the teachings as in Treatch and Lusky. The motivation for doing so would have been to provide a simple and cost effective way of detecting the noise in a received signal.

**Regarding claim 35.** Irving teaches an IF unit, capable of down-converting the signal on an RF band and selecting one of the first and the second frequency channels for transmission. (figure 3 item 104)

**Regarding claim 36.** Irving teaches wherein the IF unit is configured to filter the down converted signal. (figure 3 items 112, 114, 116)

***Allowable Subject Matter***

11. Claims 14-17, 31-34, 42-44, 50-56, and 59-65 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to MICHAEL T. THIER whose telephone number is (571) 272-2832. The examiner can normally be reached on Monday thru Friday 7:30-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alexander Eisen can be reached on (571) 272-7687. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/M. T. T./  
Examiner, Art Unit 2617  
3/11/2009

/Alexander Eisen/

Supervisory Patent Examiner, Art Unit 2617